State of Georgia
Department of Transportation

Bridge Deck Sections

Bridge Deck Sections

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Atlanta, Georgia 30308

Georgia Department of Transportation

This document was developed as part of the continuing effort to provide guidance within the Georgia Department of Transportation in fulfilling its mission to provide a safe, efficient, and sustainable transportation system through dedicated teamwork and responsible leadership supporting economic development, environmental sensitivity and improved quality of life. This document is not intended to establish policy within the Department, but to provide guidance in adhering to the policies of the Department.

Your comments, suggestions, and ideas for improvements are welcomed.

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DISCLAIMER

The Georgia Department of Transportation maintains this printable document and is solely responsible for ensuring that it is equivalent to the approved Department guidelines.

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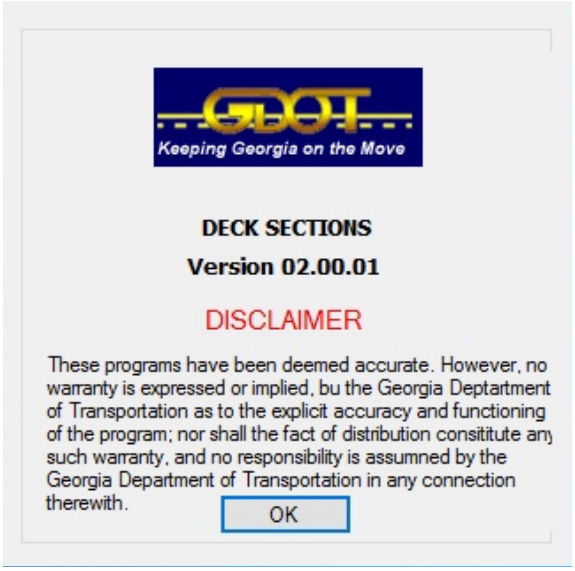
Chapter 1 Deck Sections

1.1 Purpose

The purpose of this program is to allow GDOT MicroStation users to create Deck Section input files. This chapter covers the Deck Section application for Bridge Design.
NOTE:

- This program is for MicroStation V8 and newer data; does not support V7 input data.
- An example project is used for program data throughout the document.

1.2 Application Overview



1.3 Deck Section Components

The GDOT – Deck Section window contains the following components:

- Title bar
- Menu bar
- Toolbar
- Project tab
- General details tab
- Bridge Width
- Overhangs and beam spacing
- Slab
- Miscellaneous

1.4 Types Of Deck Section Information

Use the fields in the tabs of the GDOT - Deck Sections window to set the following information about deck sections:

- "D" dimension information
- Beam information
- Beam spacing information
- Centerline information
- General information
- Girder information
- Lane width and cross slope information
- Miscellaneous information
- Negative moment or continuous reinforcing steel information
- Overhang information
- Project description information
- Reinforcing steel distribution information
- Reinforcing steel information
- Slab quantity information
- Slab thickness information

1.5 Menu Bar Options

File: Select this menu item to display the File menu. Use this menu to perform any of the following tasks:

- Open a new Deck Section input file
- Open an existing Deck Section input file
- Save a Deck Section input file
- Save a Deck Section input file with another file name
- Print a concrete quantity file
- Preview a concrete quantity file
- Preview a graphics design file
- Exit the Deck Section application

Help: Select this menu item to display the Help menu. Use this menu to perform any of the following tasks:

- Search for specific Help topics about the Deck Sections application
- View version information about the Deck Sections application

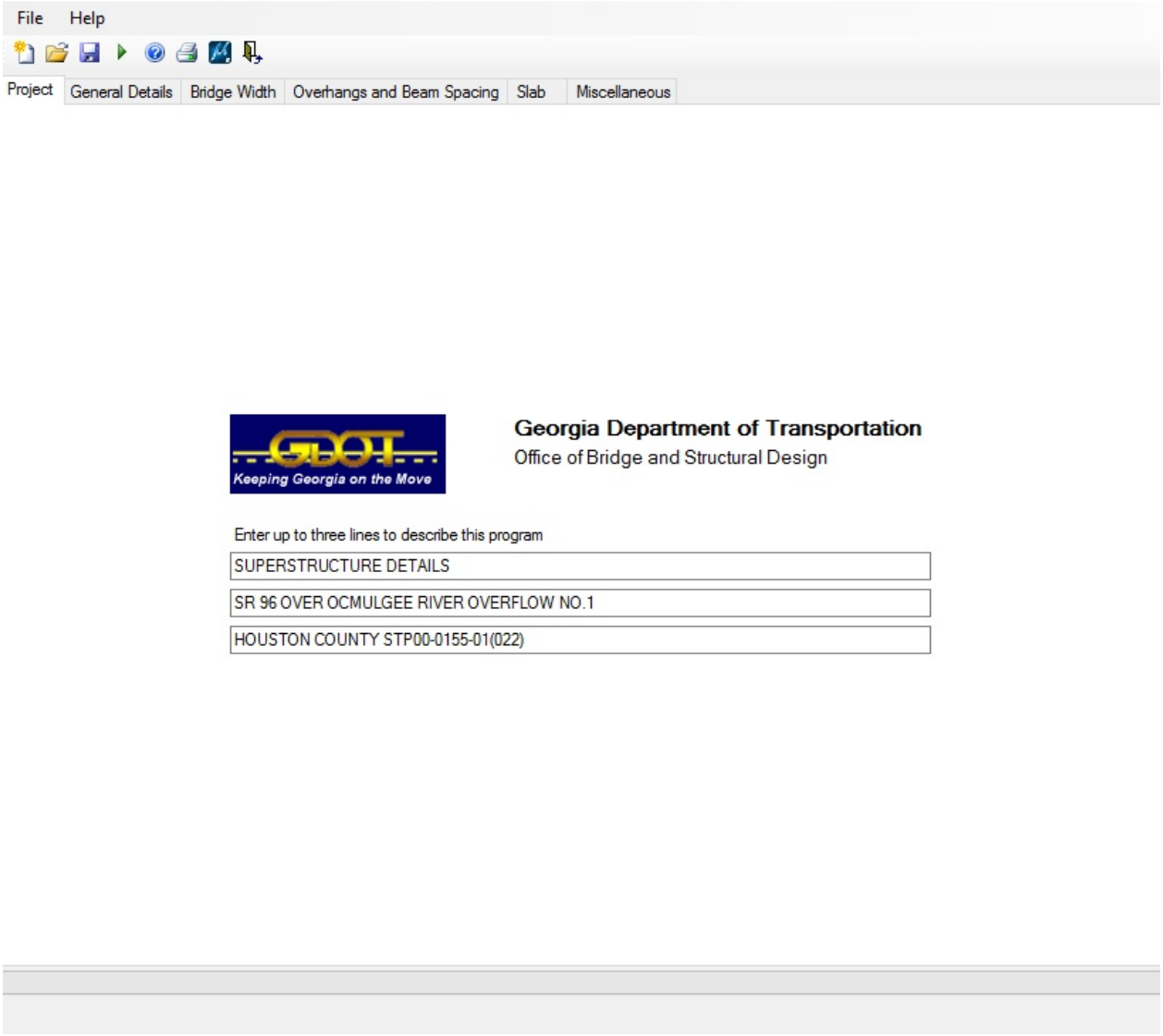
1.6 Toolbar Options

The Deck Section toolbar is one of the components in the GDOT – Deck Section window. The Deck Section toolbar contains the following toolbar buttons:

- New
- Open
- Save
- Run
- Help
- Print
- Open Drawing
- Exit

Field	Descriptions
	**New:** Select this toolbar button to display the Confirm Reset confirmation window. Use this window to verify that you want to open a new Concrete Bent input file.
	**Open:** Select this toolbar button to display the Open window. Use this window to open an existing Concrete Bent input file.
	**Save:** Select this toolbar button to display the Save As window. Use this window to save the Concrete Bent input file.
	**Run:** Select this toolbar button to run the input file and create a MicroStation DGN File.
	**Help:** Select this toolbar button to display the Help contents window. Use this window to search for specific Help topics about the Concrete Bent application.
	**Print:** Select this toolbar button to display the Printer window. Use this window to perform any of the following tasks: • Preview a graphics design file • Print a concrete quantity file
	**Open Drawing:** Opens MicroStation from Concrete Bent using the current input file.
	**Exit:** Select this toolbar button to display the Confirm Exit confirmation window. Use this window to verify that you want to exit the Concrete Bent application.

Chapter 2 Project Tab



Introduction: Use the fields in the GDOT - Deck Sections window, Project tab to enter the project description information.

Enter Up To Three Lines To Describe This Program

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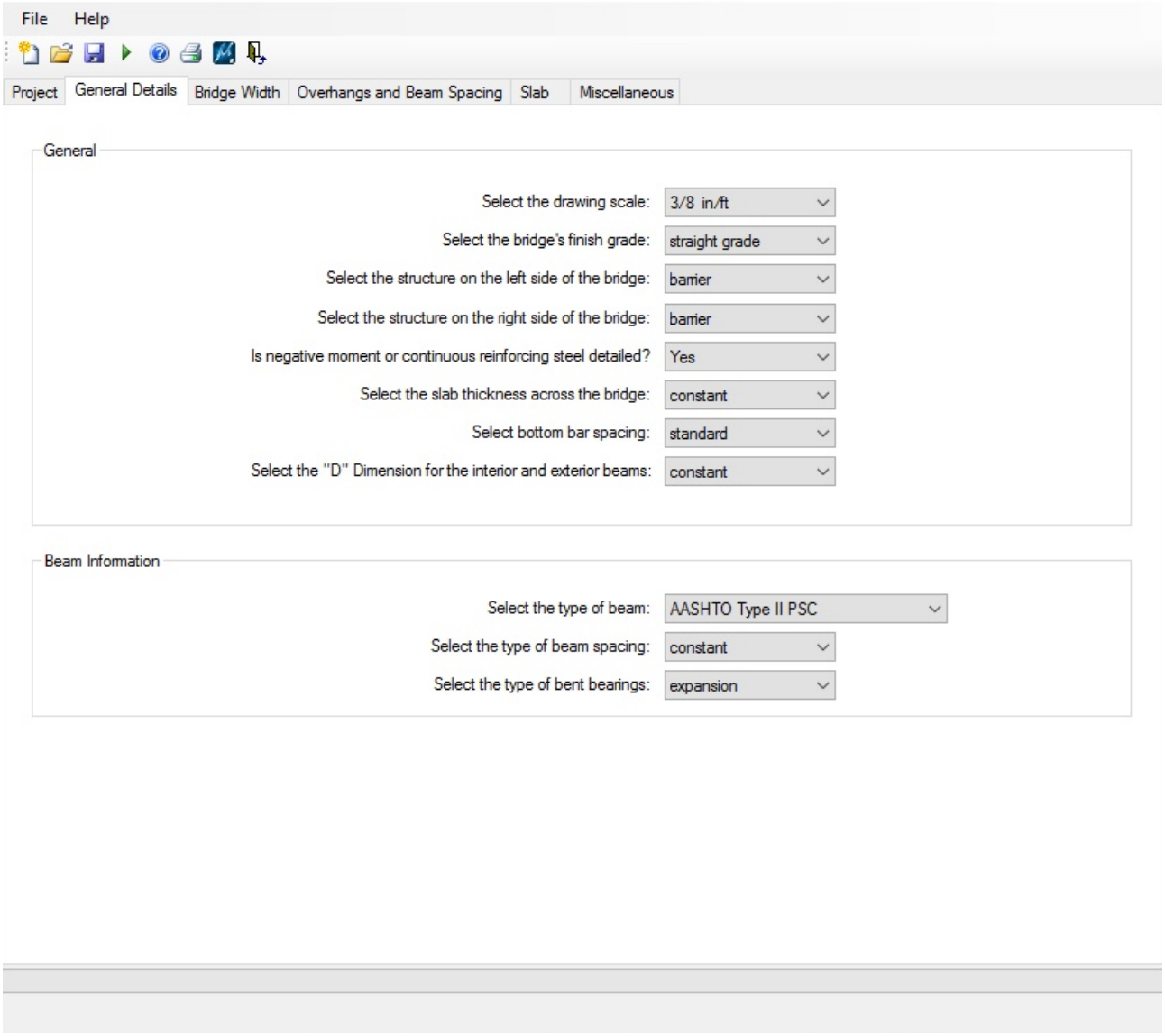
Chapter 3 General Details



Introduction: Use the fields in the GDOT - Deck Sections General Details tab to set the following information about deck sections: Beam information, General information, and Girder information

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3.1 General Details List of Window Fields

- General group box
  - Select The Drawing Scale
  - Select The Bridge's Finished Grade
  - Select The Structure On The Left Side Of The Bridge
  - Select The Structure On The Right Side Of The Bridge
  - Is Negative Moment Or Continuous Reinforcing Steel Detailed?
  - Select The Slab Thickness Across The Bridge
  - Select bottom bar spacing
  - Select The "D" Dimension For The Interior And Exterior Beams
- Beam Information group box
  - Select The Type Of Beam
  - Select The Type Of Beam Spacing
  - Select The Type Of End Bent Bearings
- Girder Information group box
  - Enter The Total Girder Depth
  - Enter The Top & Bottom Flange Width

3.2 General Details Options

Field	Descriptions
Select The Drawing Scale	Use this field in the General group box to set the text size, arrowhead size, and detailing measurements for the drawing. Select one of the following values: • 3/8 in/ft • 1/2 in/ft • 1/4 in/ft
Select The Bridge's Finished Grade	Use this field in the General group box to set the grade of the bridge. Select one of the following values: • Straight grade (default value) • Vertical curve
Select The Structure On The Left Side Of The Bridge	Use this field in the General group box to set the type of structure that is on the left side of the bridge. Select one of the following values: • Barrier (default value) • Parapet and sidewalk
Is Negative Moment Or Continuous Reinforcing Steel Detailed?	Use this field in the General group box to set whether or not negative moment or continuous reinforcing steel bar is used. Select one of the following values: • Yes (default value) • No
Select The Structure On The Right Side Of The Bridge	Use this field in the General group box to set the type of structure that is on the right side of the bridge. Select one of the following values: • Barrier (default value) • Parapet and sidewalk

Field	Descriptions
Is Negative Moment Or Continuous Reinforcing Steel Detailed?	Use this field in the General group box to set whether or not negative moment or continuous reinforcing steel bar is used. Select one of the following values: • Yes (default value) • No
Select The Slab Thickness Across The Bridge	Use this field in the General group box to set the thickness of the slab across the bridge. Select one of the following values: • Constant (default value) • Variable
Select The "D" Dimension For The Interior And Exterior Beams	Use this field in the General group box to set the "D" dimension for the interior and exterior beams. Select one of the following values: • Constant (default value) • Variable Note: If you selected "2'-3" (27"h x 18"w) RCDGs" or "2'-9" (33"h x 18"w) RCDGs" in the "*Select The Type Of Beam*" field in this tab, this field is not displayed.
Select The Type Of Beam	Use this field in the Beam Information group box to set the type of beams used.

Field	Descriptions
Select The Type Of Beam Spacing	Use this field in the Beam Information group box to set the type of beam spacing. Select one of the following values: • Constant (default value) • Variable
Select The Type Of End Bent Bearings	Use this field in the Beam Information group box to set the type of end bent bearings. Select one of the following values: • Expansion (default value) • Fixed
Enter The Total Girder Depth	Use this field in the Girder group box to set the depth of the girders, in inches. Note: If you selected "Plate Girders" in the "*Select The Type Of Beam*" field in this tab, this field is displayed.
Enter The Top And Bottom Flange Width	Use this field in the Girder group box to set the width of the top and bottom flanges of the girder, in inches. Note: If you selected "Plate Girders" in the "*Select The Type Of Beam*" field in this tab, this field is displayed

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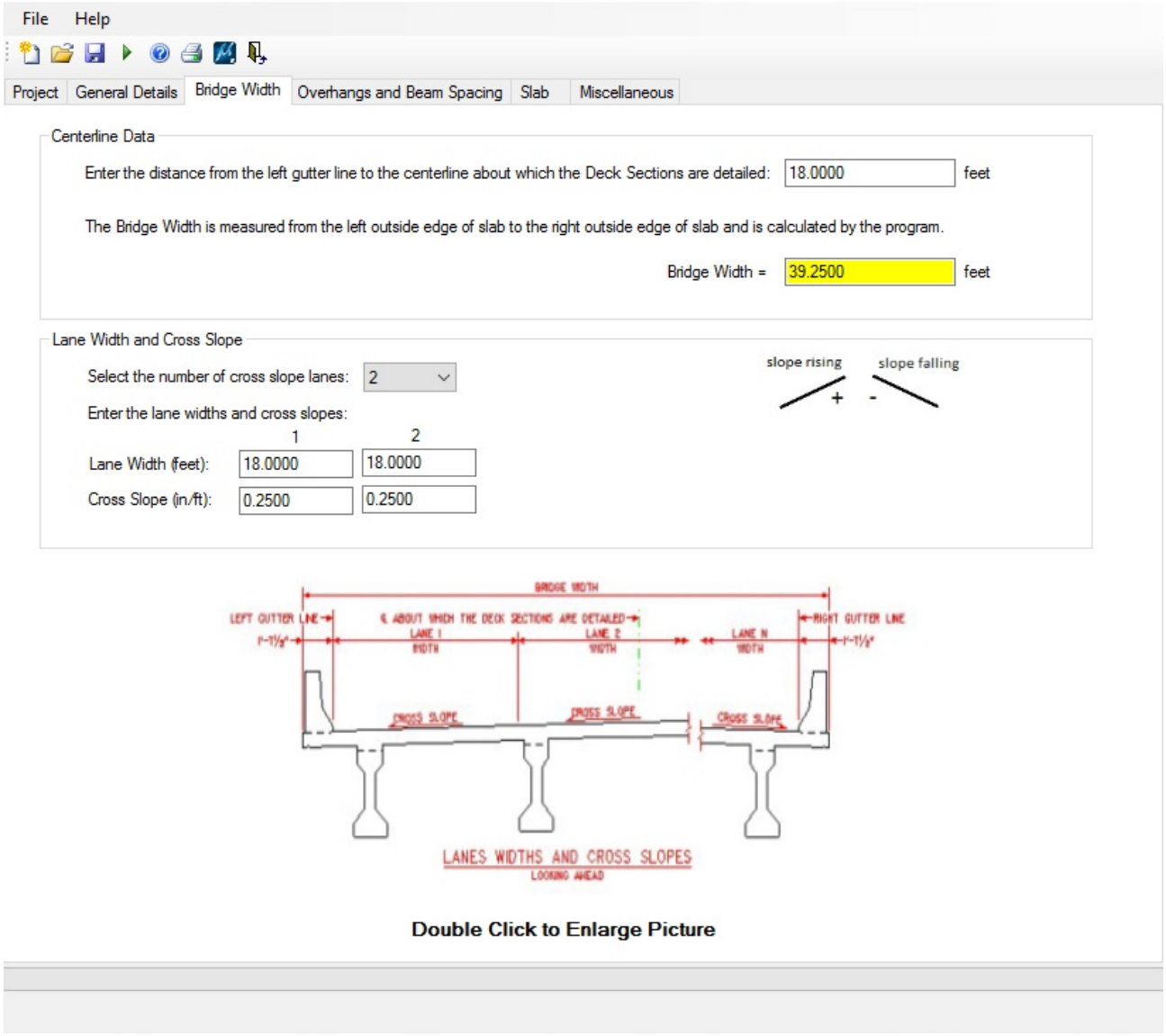
Chapter 4 Bridge Width



Use the fields in the GDOT - Deck Sections Bridge Width tab to set the following information about deck sections: Centerline information and Lane width and cross slope information

4.1 Bridge Width List of Window Fields

- Centerline Data group box
    - Enter The Distance From The Left Gutter Line To The Centerline About Chich The Deck Sections Are Detailed
    - Bridge Width
- Lane Width And Cross Slope group box
    - Select The Number Of Cross Slope Lanes
    - Lane Width
    - Cross Slope
    - Double Click To Enlarge Picture

4.2 Bridge Width Options

Field	Descriptions
Enter The Distance From The Left Gutter Line To The Centerline About Which The Deck Sections Are Detailed	Use this field in the Centerline Data group box to set the distance between the left gutter line and the centerline about which the Deck Sections are detailed, in feet
Bridge Width	The Deck Sections application calculates the width of the bridge and displays the width, in feet, in this field in the Centerline Data group box.
Select The Number Of Cross Slope Lanes	Use this field in the Lane Width And Cross Slope group box to set the number of cross slope lanes.

Field	Descriptions
Lane Width	Use this field in the Lane Width And Cross Slope group box to set the width of the lanes, in feet. If the cross slope is variable across the bridge, set the lane widths as follows: • Lane Width 1 is the distance from the left gutter line to the right edge of the first cross slope lane. • Lane Width 2 is the distance from the left edge of the first cross slope lane to the right gutter line. If the cross slope is constant across the bridge, set the lane widths as follows: • Lane Width 1 is the distance from the left gutter line to the right edge of the first cross slope lane. • Lane Width 2 is the distance from the left edge of the first cross slope lane to the right edge of the second cross slope lane or the right gutter line. • Lane Width 3 is the distance from the left edge of the second cross slope lane to the right edge of the third cross slope lane or the right gutter line. • Lane Width 4 is the distance from the left edge of the third cross slope lane to the right edge of the forth cross slope lane or the right gutter line. • Lane Width 5 is the distance from the left edge of the forth cross slope lane to the right edge of the fifth cross slope lane or the right gutter line. • Lane Width 6 is the distance from the left edge of the fifth cross slope lane to the right gutter line.

Field	Descriptions
Cross Slope	Use this field in the Lane Width And Cross Slope group box to set the positive or negative cross slope for each lane, in inches/feet
Double Click To Enlarge Picture	Use this field to view an example of a Lanes Widths and Cross Slopes drawing. This drawing includes the following information: • The centerline of the bridge • The cross slope of each lane • The left gutter line • The right gutter line • The width of each lane • The width of the bridge

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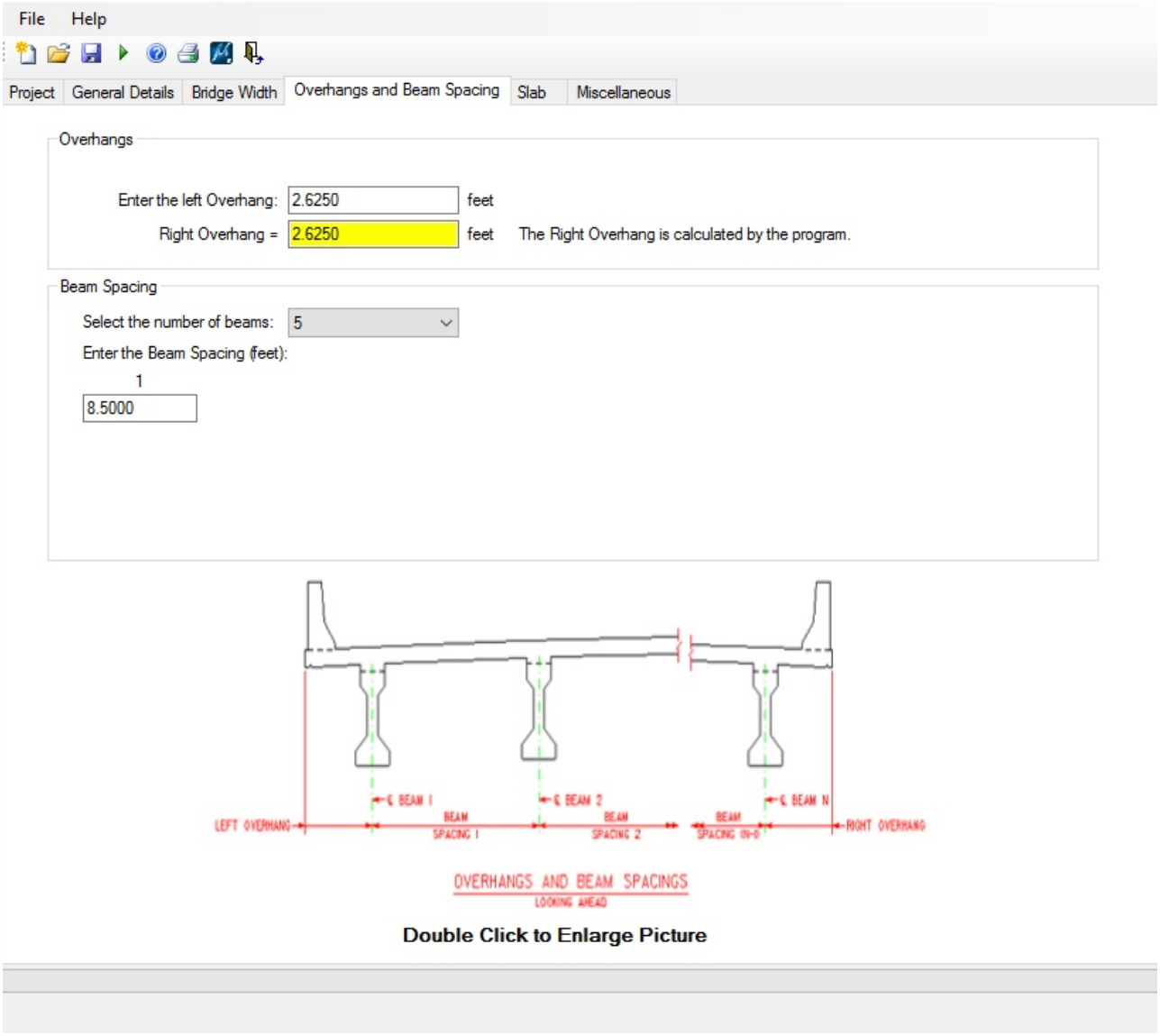
Chapter 5 Overhangs and Beam Spacing



Introduction: Use the fields in the GDOT - Deck Sections Overhangs and Beam Spacing tab to set the following information about deck sections: Beam spacing information and Overhang information

5.1 Overhangs and Beam Spacing List of Window Fields

- Overhangs group box
  - Enter The Left Overhang
  - Right Overhang
- Beam Spacing group box
  - Select The Number Of Beams
  - Beam Spacing
  - Double Click To Enlarge Picture

5.2 Overhangs and Beam Spacing Options

Field	Descriptions
Enter The Left Overhang	Use this field in the Overhangs group box to set the length of the left overhang, in feet.
Right Overhang	The Deck Sections application calculates the right overhang and displays the overhang value, in feet, in this field in the Overhangs group box.
Select The Number Of Beams	Use this field in the Beam Spacing group box to set the number of beams used. The default, minimum, and maximum values are as follows: • Default value: 4
Beam Spacing	Use this field in the Beam Spacing group box to set the distance between the beams, in feet. The minimum and maximum values are as follows: Note: • If you selected "Constant" in the Select "*The Type Of Beam Spacing"* field in the GDOT - Deck Sections General Details tab, one entry field is displayed. • If you selected "Variable" in the "*Select The Type Of Beam Spacing"* field in the GDOT - Deck Sections General Details tab, multiple entry fields are displayed. The number of entry fields is calculated by the following formula: number of entry fields = (number of beams) - 1
Double Click To Enlarge Picture	Use this field to view an example of an Overhangs and Beam Spacings drawing. This drawing includes the following information: • The left overhang • The right overhang • The spacing between each beam

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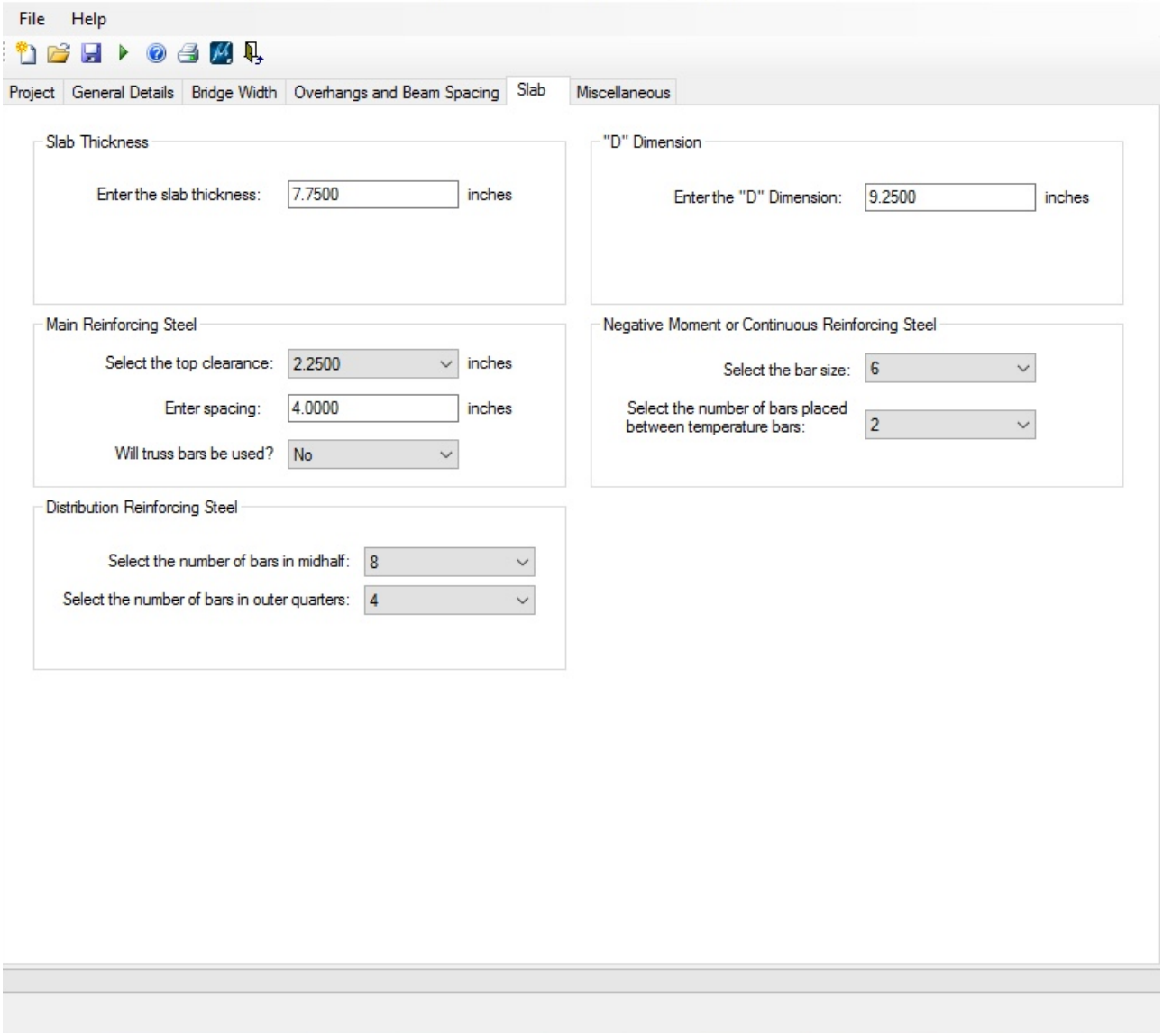
Chapter 6 Slab



Introduction: Use the fields in the GDOT - Deck Sections window, Slab tab to set the following information about deck sections: "D" dimension information, Negative moment or continuous reinforcing steel bar information, Reinforcing steel bar distribution information, Reinforcing steel bar information, and Slab thickness information

6.1 Slab List of Window Fields

- Slab Thickness group box
  - Enter The Slab Thickness
  - Enter The Overhang Slab Thickness
- Main Reinforcing Steel group box
  - Select The Top Clearance
  - Enter The Spacing
  - Will Truss Bar Be Used?
- Distribution Reinforcing Steel group box
  - Select The Number Of Bars In Midhalf
  - Select The Number Of Bars In Outer Quarter
- "D" Dimension group box
  - Enter The "D" Dimension
  - Enter The Interior "D" Dimension
  - Enter The Exterior "D" Dimension
- Negative Moment Or Continuous Reinforcing Steel group box
  - Select The Bar Size
  - Select The Number Of Bars Placed Between Temperature Bars

6.2 Slab Options

Field	Descriptions
Enter The Slab Thickness	Use this field in the Slab Thickness group box to set the thickness of the slab, in inches.
Enter The Overhang Slab Thickness	Use this field in the Slab Thickness group box to set the thickness of the overhang slab, in inches. Note: If you selected "Constant" is selected in the "*Select The Slab Thickness Across The Bridge*" field in the GDOT - Deck Sections General Details tab, this field is not displayed.
Select The Top Clearance	Use this field in the Main Reinforcing Steel group box to set the top clearance of the main reinforcing steel bars, in inches. Select one of the following values: • 2.0000 inches (default value) • 2.2500 inches • 2.5000 inches • 2.7500 inches
Enter The Spacing	Use this field in the Main Reinforcing Steel group box to set the spacing of the main reinforcing steel, in inches.
Will Truss Bars Be Used?	Use this field in the Main Reinforcing Steel group box to set whether or not truss bars are used. Select one of the following values: • No (default value) • Yes
Select The Number Of Bars In Midhalf	Use this field in the Distribution Reinforcing Steel group box to set the number of reinforcing steel bars in the midhalf. • Default value: 3

Field	Descriptions
Select The Number Of Bars In Outer Quarter	Use this field in the Distribution Reinforcing Steel group box to set the number of reinforcing steel bars in the outer quarter. • 2 (default value)
Enter The Interior "D" Dimension	Use this field in the "D" Dimension group box to set the distance between the top of the deck and the top of the beams, in inches. Note: • If you selected "Constant" in the "*Select The "D" Dimension For The Interior And Exterior Beams*" field in the GDOT - Deck Sections General Details tab, this field is not displayed. • If you selected "2'-3" (27"h x 18"w) RCDGs" or "2'-9" (33"h x 18"w) RCDGs" in the "*Select The Type Of Beam*" field in the GDOT - Deck Sections General Details tab, this field is not displayed.
Enter The Exterior "D" Dimension	Use this field in the "D" Dimension group box to set the distance between the top of the deck and the top of the beams, in inches Note: • If you selected "Constant" in the "*Select The "D" Dimension For The Interior And Exterior Beams*" field in the GDOT - Deck Sections General Details tab, this field is not displayed. • If you selected "2'-3" (27"h x 18"w) RCDGs" or "2'-9" (33"h x 18"w) RCDGs" in the "*Select The Type Of Beam*" field in the GDOT - Deck Sections General Details tab, this field is not displayed.

Field	Descriptions
Select The Bar Size	Use this field in the Negative Moment Or Continuous Reinforcing Steel group box to set the size of the reinforcing steel bars7 (default value) Note: If you selected "No" in the "*Is Negative Moment Or Continuous Reinforcing Steel Detailed?*" field in the GDOT - Deck Sections General Details tab, this field is not displayed.
Select The Number Of Bars Placed Between Temperature Bars	Use this field in the Negative Moment Or Continuous Reinforcing Steel group box to set the number of reinforcing steel bars placed between the temperature bars. • 1 (default value) Note: If you selected "No" in the "*Is Negative Moment Or Continuous Reinforcing Steel Detailed?*" field in the GDOT - Deck Sections General Details tab, this field is not displayed.

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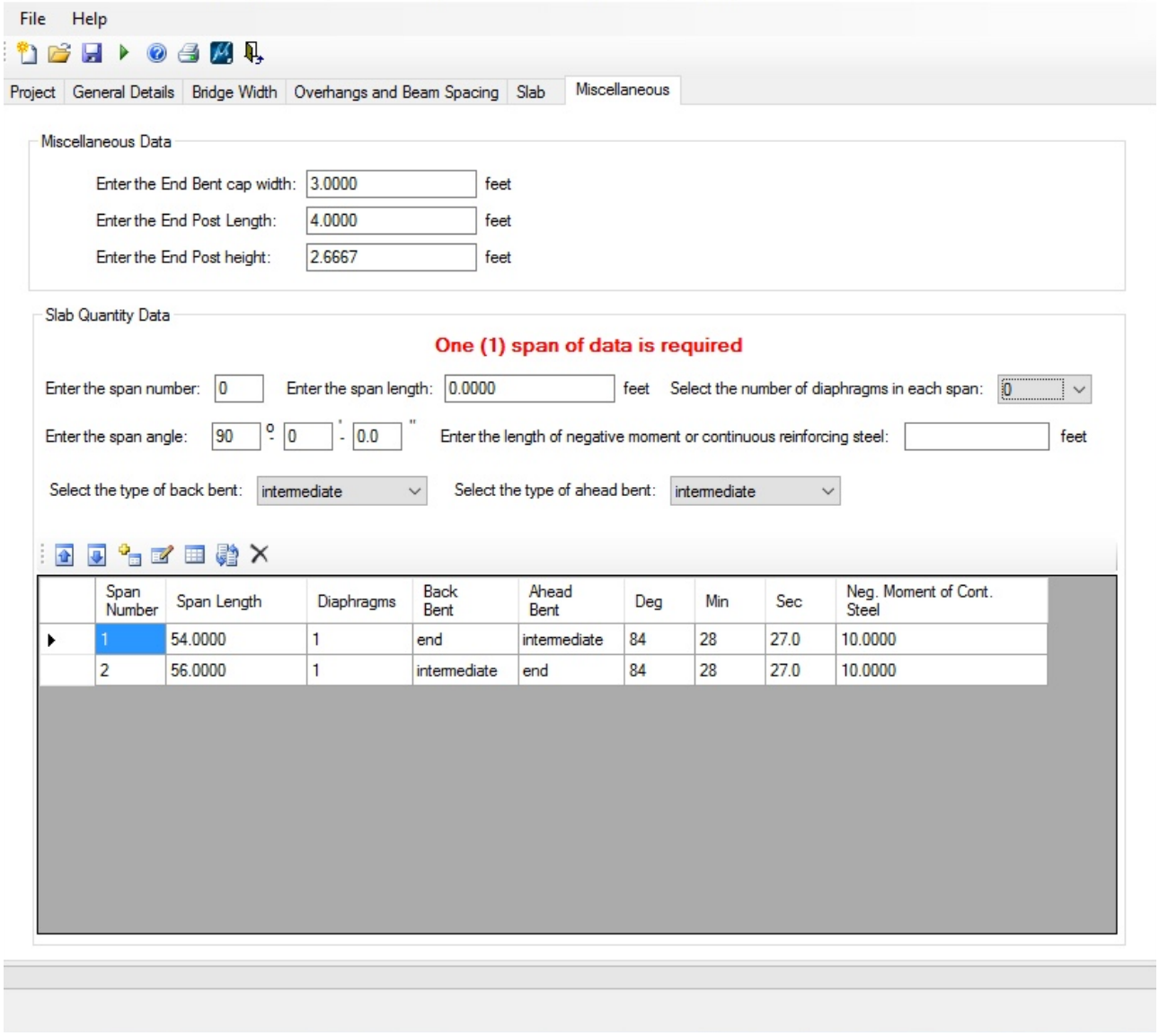
Chapter 7 Miscellaneous



Introduction: Use the fields in the GDOT - Deck Sections Miscellaneous tab to set the following information about deck sections: Miscellaneous information and Slab quantity information

7.1 Miscellaneous List of Window Fields

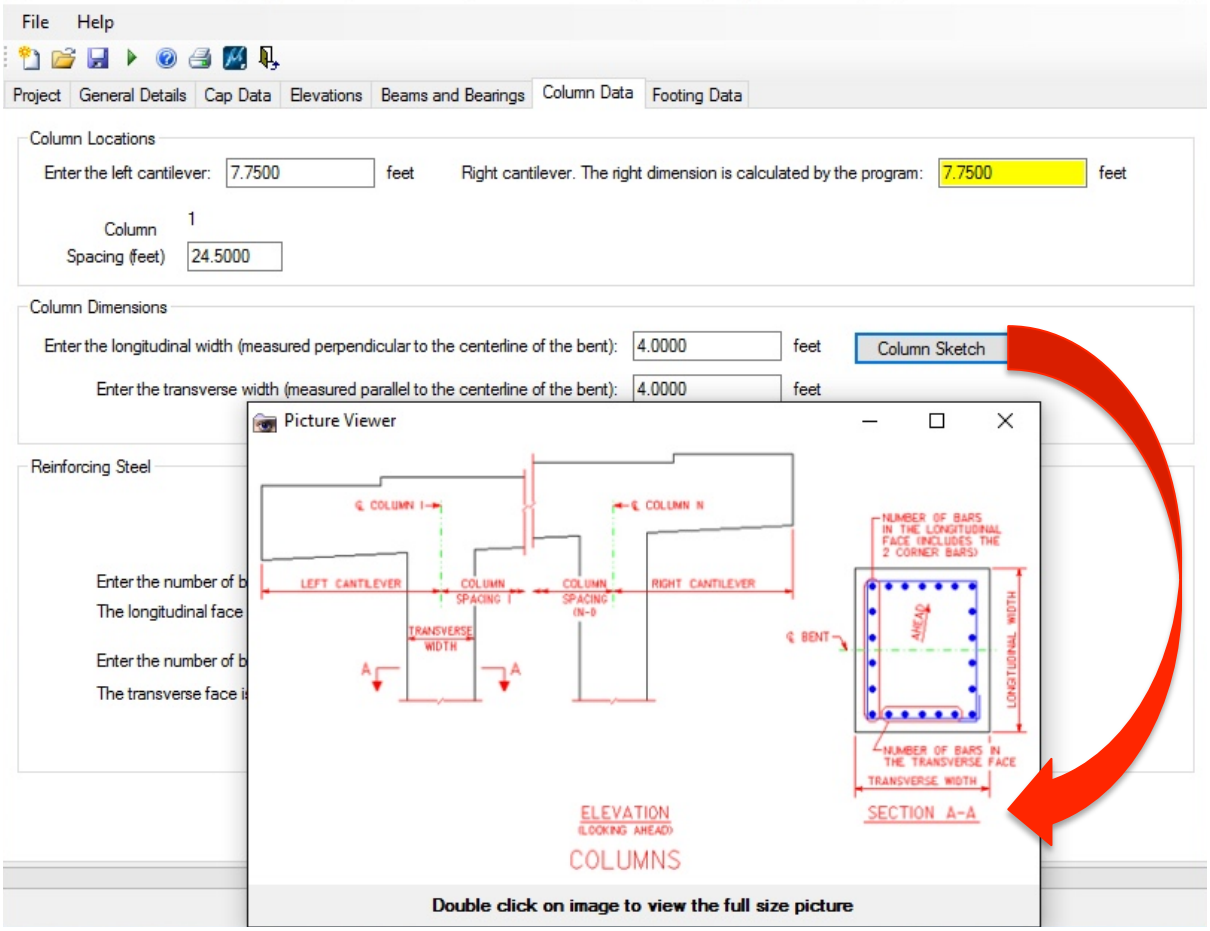
- Miscellaneous Data group box
    - Enter The End Bent Cap Width
    - Enter the End Post Length
    - Enter the End Post Height
- Slab Quantity Data group box
    - Enter the Span Number
    - Enter The Span Length
    - Select The Number Of Diaphragms In Each Bay
    - Enter The Span Angle
    - Enter The Length Of Negative Moment Or Continuous Reinforcing Steel
    - Select The Type Of Back Bent
    - Select The Type of Ahead Bent
- Span Number/Span Length/Diaphragms/Back Bent/Ahead Bent/Degrees/Minutes/Seconds/Negative Moment Or Continuous Steel table

7.2 Miscellaneous Options

Field	Descriptions
Enter The End Bent Cap Width	Use this field in the Miscellaneous Data group box to set the width of the End Bent cap, in feet. • Default value: 3.0000 feet
Enter The End Post Length	Use this field in the Miscellaneous Data group box to set the length of the End Post, in feet. • Default value: 4.0000 feet
Enter The End Post Height	Use this field in the Miscellaneous Data group box to set the height of the End Post, in feet. • Default value: 2.6667 feet
Enter The Span Number	Use this field in the Slab Quantity Data group box to set the span number.
Enter The Span Length	Use this field in the Slab Quantity Data group box to set the length of the span, in feet.
Select The Number Of Diaphragms In Each Bay	Use this field in the Slab Quantity Data group box to set the number of diaphragms in each bay. • Default value: 0
Enter The Span Angle	Use this field in the Slab Quantity Data group box to set the angle of the span, in degrees, minutes, and seconds.

Field	Descriptions
Enter The Length Of Negative Moment Or Continuous Reinforcing Steel	Use this field in the Slab Quantity Data group box to set the length of the negative moment or continue reinforcing steel bars, in feet. Note: If you selected "No" in the "*Is Negative Moment Or Continuous Reinforcing Steel Detailed?*" field in the GDOT - Deck Sections General Details tab, this field is not displayed.
Select The Type Of Back Bent	Use this field in the Slab Quantity Data group box to set the type of back bent used. • Intermediate (default value)
Select The Type Of Ahead Bent	Use this field in the Slab Quantity Data group box to set the type of ahead bent used. • Intermediate (default value)

Span Number/Span Length/Diaphragms/Back Bent/Ahead Bent/Degrees/Minutes/Seconds/Negative Moment Or Continuous Steel table.	
Field	**Descriptions**
Span Number	The span number.
Span Length	The length of the span, in feet.
Diaphragms	The number of diaphragms in each bay.
Back Bent	The type of back bent used.
Ahead Bent	The type of ahead bent used.
Degrees	The angle of the span, in degrees.
Minutes	The angle of the span, in minutes.
Seconds	The angle of the span, in seconds.
Negative Moment Or Continuous Steel	The length of the negative moment or continue reinforcing steel bars, in feet.



7.3 Column Sketch

Field	Descriptions
Click To View Column Sketch	Choose this button in the Column Dimensions group box to display the Column Sketch window. Use this window to view an example sketch. This sketch includes the following information: • The location of the centerline of each column • The location of the left cantilever measurement • The location of each column spacing measurement • The location of the right cantilever measurement • The location of the transverse face of the column • The location of the longitudinal face of the column